

REMARKS/ARGUMENTS**Claim Rejections - 35 USC § 102(e)**

In section 3 of the current office action, the Examiner rejected Claims 1-16, 18-24, 29-40,
5 42-46, and 49 under 35 U.S.C. § 102(e) as being anticipated by Willebrand et al. (US
Pat. No. 6,763,195), hereinafter referred to as the “Willebrand patent.”

The Examiner’s rejection of Claim 1

In particular, the Examiner stated regarding Claim 1 that, the Willebrand patent teaches a
10 node (referring to element 20 in Figure 3) incorporating hybrid radio frequency and
optical wireless communication links (referring to element 26 and 28 in Figure 3), the
node comprising: at least one laser portion (referring to element 56 in Figure 3) for
transmitting data (referring to column 8, lines 32-55); at least one radio frequency portion
(referring to element 58 in Figure 3) for transmitting data; a data receiver (referring to
15 element 60 in Figure 3) for receiving data from a data source (referring to column 8, lines
32-55); and a controller (referring to element 62 in Figure 3) configured to receive data
from a data source and connected with the laser portion and the radio frequency portion
to allocate portions of the data to be transmitted through the laser portion and the radio
frequency portion (referring to column 10, lines 43-47, and column 13, lines 51-65).

The Examiner’s rejection of Claim 18

Regarding Claim 18, the Examiner stated that the Willebrand patent teaches a network
(referring to element 20 in Figure 1) of a plurality of nodes (referring to elements 22
and 24 in Figure 1), wherein each node (referring to element 22 in Figures 1 and 3)
25 includes: at least one laser portion for transmitting data (referring to element 56 in
Figure 3); at least one radio frequency portion for transmitting data (referring to
element 58 in Figure 3); a data receiver for receiving data from a data source (referring
to element 60 in Figure 3); and a controller (referring to element 127 in Figure 5)
configured to receive data from a data source and connected (referring to element 72 in
30 Figure 3) with the laser portion (referring to element 56 in Figure 3) and the radio
frequency portion (referring to elements 58 and 80 in Figure 3) to allocate portions of

the data to be transmitted through the laser portion or the radio frequency portion (referring to column 14, lines 54-64).

Regarding the rejections of Claims 1 and 18 over the Willebrand patent

5 Addressing the requirements of anticipation, the Federal Circuit stated that, “There must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention.” *Scripps Clinic & Research Found. V. Genentech Inc.*, 927 F.2d 1576 (Fed. Cir. 1991). Furthermore, the Federal Circuit stated that “Anticipation requires that every element of the claims appear in a
10 single reference ...” *Continental Can Co. USA v. Monsanto Co.*, 948 F.2d 1264 (Fed. Cir. 1991), and that “Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration.” *W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983). In addition, the Federal Circuit stated that under 35 U.S.C. § 102, “anticipation requires the presence in a single prior art
15 reference disclosure of each and every element of the claimed invention, arranged as in the claim.” *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452 (Fed. Cir. 1984).

Therefore, in order to establish a prima facie case of anticipation the Examiner must set
20 forth an argument that provides (1) a single reference (2) that teaches or enables (3) each of the claimed elements (as arranged in the claim) (4) either expressly or inherently and (5) as interpreted by one of ordinary skill in the art. All of these factors must be present, or a case of anticipation is not met.

25 Independent Claims 1 and 18 of the present invention recite the limitations that “at least one laser portion for transmitting data; a data receiver for receiving data from a data source; to allocate portions of the data to be transmitted.” The Applicants submit that these limitations are not taught, disclosed, or suggested in the Willebrand patent.

30 The Examiner stated that the Willebrand patent teaches a laser portion (referring to element 56 in Figure 3 and column 8 lines 32-55). However, the Applicants submit that the

Willebrand patent does not specifically teach “a laser portion” as claimed in Claim 1. Instead, the Willebrand patent specifically teaches an “optical transceiver” (referring to element 56 in Figure 3, column 8 lines 34, 40, and 43, and column 10 lines 38-44). The word “transceiver” is defined by the American Heritage Dictionary as, “a transmitter and receiver housed together in a single unit and having some circuits in common, often for portable or mobile use.” Alternatively, the word “laser” is defined by the American Heritage Dictionary as “any of several devices that emit highly amplified and coherent radiation of one or more discrete frequencies.” *The American Heritage Dictionary of the English Language, Fourth Edition, Copyright 2000, by the Houghton Mifflin Company.*

Therefore, the laser portion taught by the present invention is used only for transmitting or emitting data, as claimed in Claims 1 and 18. In contrast with the present invention, the optical transceiver taught by the Willebrand patent not only transmits signals to other optical transceivers on the system, but the optical transceiver taught by the Willebrand patent is also able to receive signals broadcasted by other optical transceivers (referring to column 10 lines 38-44). Therefore, they are two distinct devices performing distinct functions.

Although the Willebrand patent teaches an optical transceiver, the Applicants submit that a “laser portion” is not one of the elements taught by the Willebrand patent as being part of the optical transceiver. Specifically, the Willebrand patent teaches that an optical transceiver comprises an optical receiver aperture (referring to column 10 lines 38-44, and elements 88 and 90 in Figure 4), an optical pre-amplifier (referring to elements 92 and 94 in Figure 4), a channel assessment unit (referring to elements 96 and 98 in Figure 4), a control packet generator (referring to elements 100 and 102 in Figure 4), and an optical transmitter (referring to elements 108 and 110 in Figure 4). Therefore, the Willebrand patent describes in great detail the elements that form an optical transceiver, as taught by the Willebrand patent. Most importantly, the Willebrand patent does not expressly or inherently specify the use of a “laser” portion anywhere in the Willebrand patent. The Applicants respectfully request that the Examiner indicate exactly where in the Willebrand patent the Examiner finds that the limitation “laser portion” is taught, disclosed, or suggested.

In addition, the Applicants respectfully note that the Willebrand patent does not expressly or inherently specify the use of a “data source” anywhere in the document. The Applicants refer the Examiner to Figure 3 and column 8, lines 35 and 53, of the Willebrand patent, where the Willebrand patent teaches that element 60 is a transceiver interface unit. The Applicants agree with the Examiner that the transceiver interface unit (referring to element 60 in Figure 3) maybe used to receive and transmit data. However, the Applicants cannot find a “data source,” as claimed in Claims 1 and 18 of the present invention, anywhere in the Willebrand patent or in Figures 1-9. The Applicants respectfully request that the Examiner indicate exactly where in the Willebrand patent the Examiner finds that the limitation of “a data source” is taught, disclosed, or suggested.

The Applicants further submit that the Willebrand patent does not teach to allocate portions of the data to be transmitted through the laser portion and the radio frequency portion, as claimed in Claims 1 and 18. In contrast with the present invention, the Willebrand patent specifically teaches that “the optical link provides the primary path for the data, and the RF link provides a concurrent or backup path for the network data” (referring to the abstract lines 4-7). The Willebrand patent also states that “the RF link portion communicates in parallel with the optical link portion of the hybrid link” (referring to column 8 lines 50-52). The Applicants submit that, in contrast with the present invention which allocates portions of the data to be transmitted through the laser portion and the radio frequency portion, the Willebrand patent transmits all of the data through the optical link and the RF link. Therefore, the Willebrand patent does not teach, disclose, or suggest to only transmit portions of the data. The Applicants respectfully request that the Examiner indicate exactly where in the Willebrand patent the Examiner finds that the limitation “allocate portions of the data to be transmitted” is taught, disclosed, or suggested.

Therefore, the Applicants submit that the Willebrand patent, in combination with the knowledge of one skilled in the art, does not teach, disclose, or suggest, expressly or inherently, all of the claimed limitations of Claims 1 and 18.

Because the Willebrand patent fails to teach all the elements of Claims 1 and 18, arranged exactly as in Claims 1 and 18, for reasons discussed above, the Applicants respectfully request that the Examiner withdraw this rejection of Claims 1 and 18.

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The Examiner's rejections of Claims 3-4, 7, 9, 20-21, 29, 33, 42, and 45

Regarding Claims 3-4, 7, and 9, the Examiner stated that the Willebrand patent teaches that the controller is configured to receive environmental information and wherein the portions of the data to be transmitted through the laser portion and the radio portion are
10 adjusted by the controller based on the environmental information (referring to column 2, lines 31-45, column 10, lines 18-20, column 11, lines 63-67, and column 12, lines 1-13).

Regarding Claims 20-21, 29, 33, 42, and 45, the Examiner stated that the Willebrand
15 patent teaches that the controller of each node is configured to receive environmental information, and wherein the portion of data to be transmitted through the laser portion or the radio frequency portion are adjusted by the controller based on the environmental information (referring to column 2, lines 31-45, column 10, lines 18-20, column 11, lines 63-67, and column 12, lines 1-13).

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Regarding the rejections of Claims 3-4, 7, 9, 20-21, 29, 33, 42, and 45 over the Willebrand patent

Claims 3-4, 7, 9, 20-21, 29, 33, 42, and 45 of the present invention recite the limitations that "the controller is configured to receive environmental information and wherein the
25 portions of the data to be transmitted through the laser portion and the radio portion are adjusted by the controller based on the environmental information." The Applicants submit that these limitations are not taught, disclosed, or suggested in the Willebrand patent.

The Willebrand patent specifically teaches that under severe weather conditions, the optical transceiver may detect degradation of the optical signal from the optical path and, in this situation, if the optical transceiver detects optical beam degradation, the optical transceiver sets the optical failure field and routes the control packets to the RF transceiver (referring to column 11, lines 63-67, and column 12, lines 1-13). The Applicants submit that the Willebrand patent uses a measurement of the optical signal degradation to switch the transmission from the optical link to the RF link. However, the Willebrand patent does not teach receiving environmental information which is then used by the controller to allocate portions of the data to be transmitted through the laser portion and the radio portion based on the environmental information, as claimed in Claims 3-4, 7, 9, 20-21, 29, 33, 42, and 45. Therefore, the Applicants submit that the Willebrand patent switches transmissions between the optical link and the RF link based on the degradation of the optical signal, which may or may not be degraded due to the weather, while the present invention switches transmissions between the laser portion and the radio frequency portion based on the environmental information received by the controller, and not based on the signal degradation. An advantage of the present invention is that it may allocate portions of the data to be transmitted through the radio frequency portion based on received environmental information prior to the data being degraded, while the invention taught by the Willebrand patent waits until certain level of signal degradation is detected before routing the control packets to the RF transceiver.

Furthermore, the Applicants submit that the Willebrand patent does not have a controller that is configured to receive environmental information, as claimed in the present invention. The Applicants submit that the Willebrand patent does not use any environmental inputs in order to control the transmissions through the optical links and RF links.

The Applicants respectfully request that the Examiner indicate exactly where in the Willebrand patent that the Examiner finds that the limitations of “a controller configured to receive environmental information” and “wherein the portions of the data to be

transmitted through the laser portion and the radio portion are adjusted by the controller based on the environmental information” are taught, disclosed, or suggested.

Regarding the rejections of Claims 33 and 45 over the Willebrand patent

5 Claims 33 and 45 specifically claim that the environmental information consists of weather-related data, and wherein the portions of the data to be transmitted through the laser portion and the radio frequency portion are adjusted by the controller based on the weather-related data. Nowhere in the Willebrand patent can any reference to environmental information consisting of weather-related data be found. Therefore, the
10 Applicants respectfully request that the Examiner indicate exactly where in the Willebrand patent the Examiner finds the limitation of “the environmental information consists of weather-related data, and wherein the portions of the data to be transmitted through the laser portion and the radio frequency portion are adjusted by the controller based on the weather-related data” is taught, disclosed, or suggested.

15 Therefore, the Applicants submit that the Willebrand patent, in combination with the knowledge of one skilled in the art, does not teach, disclose or suggest, expressly or inherently all of the claimed limitations of Claims 3-4, 7, 9, 20-21, 29, 33, 42, and 45, as arranged in Claims 3-4, 7, 9, 20-21, 29, 33, 42, and 45.

20 Because the Willebrand patent fails to teach all the elements of Claims 3-4, 7, 9, 20-21, 29, 33, 42, and 45 arranged exactly as in the claims, for reasons discussed above, the Applicants respectfully request that the Examiner withdraw this rejection of Claims 3-4, 7, 9, 20-21, 29, 33, 42, and 45.

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The Examiner’s rejections of Claims 29 and 42

As to Claims 29 and 42, the Examiner stated that Claims 29 and 42 further require similar limitations, as the limitations previously recited in Claim 18 above.

30 **Regarding the rejections of Claims 29 and 42 over the Willebrand patent**

As previously stated by the Examiner, Claims 29 and 42 include the same limitations as Claims 1 and 18. Mainly, Claims 29 and 42 recite the limitations that “at least one laser portion for transmitting data; a data receiver for receiving data from a data source; to allocate portions of the data to be transmitted.” In addition, Claims 29 and 42 further recite the limitations that “a controller configured to receive environmental information from the environment and data from the data source, and wherein the portions of the data to be transmitted are adjusted by the controller based on the environmental information.” As previously stated, the Applicants submit that these limitations are not taught, disclosed, or suggested in the Willebrand patent.

Therefore, the Applicants refer the Examiner to the comments above regarding Claims 1, 18, 3-4, 7, 9, 20-21, 29, 33, 42, and 45. For the reasons given above, the Applicants submit that the Willebrand patent does not teach or disclose a laser portion, a data source, allocating portions of the data, a controller configured to receive environmental information, and adjusting the data transmission based on the environmental information received by the controller instead of based on the signal degradation.

Therefore, the Applicants submit that the Willebrand patent, in combination with the knowledge of one skilled in the art, does not teach, disclose or suggest, expressly or inherently, all of the claimed limitations of Claims 29 and 42.

Because the Willebrand patent fails to teach all the elements of Claims 29 and 42, arranged exactly as in Claims 29 and 42, for reasons discussed above, the Applicants respectfully request that the Examiner withdraw this rejection of Claims 29 and 42.

The Examiner’s rejections of Claims 2, 5-6, 8, 10-17, 19, 22-28, 30-32, 34-41, 43-44, and 46-51

Regarding Claims 2 and 8, the Examiner further stated that the Willebrand patent teaches that the controller is configured as a binary switch such that the data is transmitted exclusively through either one of the laser portion or radio frequency

portion (referring to column 13, lines 51-58, column 15, lines 36-40 and 124, and Figure 5).

Regarding Claim 5, the Examiner further stated that the Willebrand patent teaches that
5 the laser portion is configured to both transmit and receive and wherein the radio frequency portion is configured to both transmit and receive (referring to column 6, lines 28-30, and column 10, lines 14-16).

Regarding Claims 6, 13 and 16, the Examiner stated that the Willebrand patent teaches
10 that the laser portion and the radio frequency portion are configured to transmit in multiple channels (referring to column 1, lines 23-35, column 5, lines 19-21, column 6, lines 27-31, and Figure 2).

Regarding Claims 10, 12 and 14, the Examiner stated that the Willebrand patent teaches
15 that the laser portion and the radio frequency portion have a transmit and receive strength, and wherein the controller is configured to monitor the transmit and receive strengths, and wherein the portions of the data to be transmitted through the laser portion and the radio frequency portion are adjusted by the controller based on their transmit and receive strengths (referring to column 13, lines 55-65, and column 14, lines 49-64).

20 Regarding Claim 11, the Examiner stated that the Willebrand patent teaches that the controller includes a plurality of latches and a logic device, wherein the plurality of latches and the logic device operate to provide adjustment levels for the portions of the data to be transmitted through the laser portion and the radio frequency portion
25 (referring to column 14, lines 46-67). The Examiner further stated that it is well known that a controller can include latches and logic devices to provide control and adjustment functions.

Regarding Claim 15, the Examiner stated that the Willebrand patent teaches that the
30 laser portion and the radio frequency portion are configured to transmit and receive in tandem, whereby the node may be configured to provide a hybrid serial link to

permit tailored radio frequency or optical network connections (referring to column 4, lines 58-67, and column 5, lines 1-21).

Regarding Claims 19, 32 and 43, the Examiner stated that the Willebrand patent teaches
5 the controller of each node configured as a binary switch such that the data is transmitted exclusively through either one of the laser portion or the radio frequency portion (referring to column 13, lines 51-58, column 15, lines 36-40 and 124 in Figure 5).

Regarding Claims 22, 30, 34, 36, 38 and 44, the Examiner stated that the Willebrand
10 patent teaches that the laser portion and the radio frequency portion of each node have transmit and receive strengths and wherein the controller is configured to monitor the transmit and receive strengths, wherein the portions of the data to be transmitted through the laser portion and the radio frequency portion are adjusted by the controller based on their transmit and receive strengths (referring to 13, lines 55-65, and column 14, lines
15 49-64).

Regarding Claims 23, 31, 37, 40, and 46, the Examiner stated that the Willebrand patent teaches the laser portion and the radio frequency portion of each node are configured to transmit in multiple channels (col. 1, lines 23-35, col. 5, lines 19-21, col. 6, lines 27-31
20 and Figure 2).

Regarding Claims 24, 39, and 49, the Examiner stated that the Willebrand patent teaches that the laser portion and the radio frequency portion are configured to transmit and receive in tandem, whereby the node may be configured to provide a
25 hybrid serial link to permit tailored radio frequency or optical network connections (referring to column 4, lines 58-67, and column 5, lines 1-21).

Regarding Claim 35, the Examiner stated that the Willebrand patent teaches that the controller includes a plurality of latches and a logic device, wherein the plurality of
30 latches and logic device operate to provide adjustment levels for the portions of the data to be transmitted through the laser portion and the radio frequency portion (referring to

column 14, lines 46-67). The Examiner further stated that it is well known that a controller can include latches and logic devices to provide control and adjustment functions.

5 **Regarding the rejections of Claims 2, 5-6, 8, 10-17, 19, 22-28, 30-32, 34-41, 43-44, and 46-51**

Claims 2-17 are dependent upon Claim 1, Claims 19-28 are dependent upon Claim 18, Claims 30-41 are dependent upon Claim 29, and Claims 43-51 are dependent upon Claim 42. For the reasons given above, the Applicants submit that Claims 1, 18, 29, and 42 are
10 patentable over the cited prior art. Therefore, the Applicants submit that Claims 2-17, 19-28, 30-41, and 43-51 are also patentable over the cited prior art at least based on their dependence upon an allowable base claim.

Furthermore, regarding the Applicant's arguments submitted as part of the reply to the
15 office action of May 3, 2005, where the Applicants requested to declare an interference due to the fact that the claims currently pending in the Willebran reference, US Patent Publication No: 2004/0037566 A1, were not taught in the specification of the Willebrand reference, the Examiner stated, in section 10 of the current office action, that the Applicant's arguments and the request to declare an interference had been considered but
20 were now moot in view of the new ground(s) of rejection based on the US granted patent Willebrand et al. (US Pat. No. 6,763,195).

The Applicants submit for the record that the Willebrand patent (US Pat. No. 6,763,195) claims a different set of claims than the set of claims claimed in the Willebrand reference
25 (US Patent Publication No: 2004/0037566) which were causing interference with the present invention.

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Claims Rejections - 35 USC§ 103(a)

The Examiner's rejections of Claims 1, 5, 6, 15, 16, 18 and 23-24 over the Perdue patent in view of the Taglione patent or the Nakamura patent

In sections 4 and 5 of the current office action, the Examiner rejected Claims 1, 5, 6, 15,
5 16, 18, and 23-24 under 35 U.S.C. § 103(a) as being unpatentable over Perdue et al. (US Pat. No. 6,529,556), hereinafter referred to as the "Perdue patent" in view of Taglione et al. (US Pat. No. 5,966,225), hereinafter referred to as the "Taglione patent," or Nakamura (US Pat. No. 6,583,908), hereinafter referred to as the "Nakamura patent."

10 **The Examiner's rejections of Claims 1 and 18 over the Perdue patent in view of the Taglione patent or the Nakamura patent**

Specifically, the Examiner stated that, regarding Claims 1 and 18, the Perdue patent teaches a node (referring to element 10, Figure 1) incorporating hybrid radio frequency and optical wireless communication links (referring to column 2 lines 50-55), the node
15 comprising: an IR portion (referring to element 16 in Figure 1) for transmitting data (referring to column 2 lines 15-17); a RF portion (referring to element 17 in Figure 1) for transmitting data (referring to column 2 lines 15-17); a data receiver (referring to element 20 in Figure 1) for receiving data from a data source (referring to column 2 line 16 and column 4 lines 10-17); and a controller (referring to element 14 in Figure 1) configured to
20 receive data from a data source (referring to element 20 in Figure 1) and connected with the IR portion and the RF portion to allocate portions of the data to be transmitted through the IR portion and the RF portion (referring to column 2 lines 14-19, column 5 lines 39-47, and Figure 4).

25 However, the Examiner further noted that the Perdue patent differs from the claimed invention in that the Perdue patent does not specifically disclose that the IR portion is a laser. Furthermore, the Examiner stated that the Perdue patent further teaches that any one of a number of conventionally known IR transmitter arrangement may be used (referring to column 5, lines 23-25). The Examiner concluded that it would have been
30 obvious to a person of ordinary skill in the art at the time of invention to incorporate a laser for transmitting a data signal, since such concept is taught by the Taglione and

Nakamura patents. The Examiner stated that the Taglione patent teaches an IR transceiver (referring to element 100 in Figure 3 and column 3, lines 47-56), wherein the IR emitter (referring to element 108 in Figure 3) can be a laser diode (referring to column 3, lines 53-54). The Examiner further stated that the Nakamura patent teaches infrared transmission/reception units (referring to elements 6a, 6b, 6c, in Figures 1a, 1b, and 2) to transmit and receive light when performing data communication by a computer (referring to column 3, lines 3-10 and 1 in Figure 2). Furthermore, the Examiner stated that the Nakamura patent teaches that laser light may be used for the infrared transmission/reception unit (referring to column 5, lines 10-15). Therefore, the Examiner concluded that it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a laser transmitter, as it is taught by the Taglione or Nakamura patents, for the IR portion in the data transmission system of the Perdue patent to generate a uniform, narrow, and relatively high power output light.

Furthermore, with respect to the Applicant's arguments submitted as part of the reply to the office action of May 3, 2005, where the Applicants stated that the proposed combination of the Perdue and Taglione patents does not teach, disclose, or suggest "a controller configured to receive data from a data source and connected with the laser portion and the radio frequency portion to allocate portions of the data to be transmitted through the laser portion and the radio frequency portion," the Examiner stated that the Examiner does not find the Applicant's arguments persuasive.

Regarding the rejection of Claims 1 and 18 over the Perdue patent in view of the Taglione patent or the Nakamura patent

In section 10 of the current office action, the Examiner stated that as discussed above in the rejections of Claims 1 and 18, the Examiner submits that the Perdue patent teaches a controller (referring to 14 in Figure 1) that receives data from a data receiver input device (referring to 20 in Figure 1) which receives data from a data source such as a keypad (referring to column 2, lines 13-16, and column 4, lines 14-17), and wherein the controller (referring to 14 in Figure 1) generates appropriate signal format in response to data received, and applies that signal format to both an IR

transmitter and a RF transmitter (referring to column 2, lines 16-19). Accordingly, the Examiner stated that the Perdue patent teaches the limitations such as a controller that is configured to receive data from a data source and connected with an IR portion and a radio frequency portion to allocate portions of the data to be transmitted

5 through the IR portion and the radio frequency portion, as recited in Claims 1 and 18 of the present invention. The Examiner stated that, as it is shown in Figures 1 and 4 of the Perdue patent, a controller (referring to element 14 in Figure 1) can allocate portions of data to an IR transmitter (referring to element 16 in Figure 1) and an RF transmitter (referring to element 17 in Figure 1). The Examiner stated that Figure 4
10 of the Perdue patent shows portions of data transmitted by the IR transmitter during time interval (referring to element 70 in Figure 1), and portions of data transmitted by the RF transmitter during the time interval (referring to element 72 in Figure 1).

Therefore, the Examiner stated that a controller (referring to element 14 in Figure 1) can allocate portions of data for transmission by the IR and RF transmitters. In

15 response to the Applicant's argument that the Perdue patent fails to show certain features of the Applicant's invention, the Examiner noted that the features upon which the Applicant relies (i.e., transmitting **only a portion of data** through the radio signal sending circuit **or** the IR sending circuit) are not recited in the rejected claim(s). The Examiner stated that although the claims are interpreted in light of the
20 specification, limitations from the specification are not read into the claims. See *In re van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In addition, with respect to the Applicant's arguments submitted as part of the reply to the office action of May 3, 2005, where the Applicants stated that the proposed
25 modification of combining the prior art of the Perdue patent, which requires low power signal transmission, with the Taglione patent, which has high power transmission, would change the principle of operation of the Perdue patent, the Examiner stated that the Examiner does not find the Applicants arguments persuasive.

30 In section 10 of the current office action, the Examiner stated that the Perdue patent teaches any one of a number of conventionally known IR transmitter and IR receiver

arrangement may be used in the present invention (referring to column 5, lines 23-25). The Examiner further stated that the Taglione patent teaches an IR emitter (referring to element 108 in Figure 3) such as an LED, or a laser diode can be used as a medium band IR emitter in a data transceiver (referring to column 3, lines 47-55).

5 The Examiner concluded that it would have been obvious to a person of ordinary skill in the art that such an IR emitter laser can be used for the IR transmitter of the Perdue patent for generating a uniform, narrow, and high power output light.

The Examiner stated that the Applicants submitted that the Perdue patent discloses an IR
10 transmitter that includes an LED coupled to a driver circuit, which is controlled by a controller, wherein the LED is driven by a low power source and that emits a low power output, and that the Examiner submits that the Perdue patent does not disclose such recitation that an LED is driven by a low power source and that a LED emits a low power output. Furthermore, the Examiner stated that the Examiner is using the Nakamura
15 patent in the Examiner's rejection to teach that laser light can be used for transmitting data, when using data entry into a computer (referring to the Nakamura patent column 3, lines 3-11).

As noted by MPEP 2143.03 to establish a *prima facie* case of obviousness, all the claim
20 limitations must be taught or suggested by the prior art. The Applicants respectfully submit that the combination of the Perdue patent with the Taglione patent and the Nakamura does not teach all of the claim limitations of Claims 1 and 18. Specifically, the Applicants assert that the combination does not teach, disclose, or suggest "a controller ... to allocate portions of the data to be transmitted through the laser portion
25 and the radio frequency portion," as is claimed in Claims 1 and 18.

The Applicants respectfully note that even the Examiner stated, in section 10 of the current office action, that the Perdue patent generates an appropriate signal format in response to a user input and applies that same signal to both IR and RF signal
30 transmitters, in agreement with the prior response submitted by the Applicants. Specifically, the Examiner stated that "the Perdue patent teaches a controller (referring to

element 14 in Figure 1) that receives data from a data receiver input device (referring to element 20 in Figure 1) which receives data from a data source such as a keypad (referring to column 2, lines 13-16, and column 4, lines 14-17), and wherein the controller (referring to 14 in Figure 1) generates appropriate signal format in response to data received, and applies that signal format to both an IR transmitter and a RF transmitter (referring to column 2, lines 16-19).” Therefore, the Applicants reiterate that (referring to col. 2, lines 14-19) the Perdue patent discloses a “controller that generates the appropriate signal format in response to a user key press and applies that signal format to both the IR and the RF signal transmitter simultaneously.” The Applicants reiterate that the Perdue patent transmit the same complete signal through both the IR transmitter and the RF transmitter simultaneously (referring to col. 3 lines 30-37) in a time multiplexed manner, generating a complete IR signal corresponding to the user input and transmitting this complete IR signal, and generating a complete RF signal corresponding to the same user input and transmitting this RF signal. Therefore, the Perdue patent does not transmit portions of the data to be transmitted through the laser portion and the radio frequency portion as the present invention claims. Instead, the Perdue patent transmits all the data (same appropriate signal to both the IR and the RF signal transmitter) without separating portions of the signal as claimed in the present invention.

The Applicants respectfully disagree with the Examiner’s statements that “Figure 1 and Figure 4 of the Perdue patent show a controller (referring to 14 in Figure 1) that can allocate portions of data to IR transmitter (referring to 16 in Figure 1) and RF transmitter (referring to 17 in Figure 1), that Figure 4 of the Perdue patent shows portions of data transmitted by the IR transmitter during time interval (referring to 70 in Figure 1), and portions of data transmitted by the RF transmitter during the time interval (referring to 72 in Figure 1), and that as a result, a controller (referring to 14 in Figure 1) can allocate portions of data for transmission by the IR and RF transmitters.” The Applicants respectfully refer the Examiner to the following definition of “multiplexing,” wherein the word “multiplexing” is defined by the Encarta® World English Dictionary, North American Edition as, the sending of two or more signals along one communication

channel. The Applicants submit that Figure 4 of the Perdue patent illustrates the time multiplexed transmission of the same complete signal (not a portion of the signal) through both the IR transmitter and the RF transmitter, wherein the same signal information is transmitted by the controller communication channel over and over in alternating time intervals to the IR transmitter and RF transmitter until the user input changes. The Applicants submit that Figure 4 of the Perdue patent illustrates the time intervals when the controller sends a complete particular remote control signal in IR form to the IR transmitter during the time intervals 70 and 74 (referring to elements 70 and 74 in Figure 4), and a complete particular remote control signal in RF form to the RF transmitter during the time interval 72 (referring to element 72 in Figure 4).

The Applicants further state that the Perdue patent clearly transmits both an RF signal and an IR signal corresponding to a user input in a time multiplexed manner (referring to col. 5, lines 39-51) without separating the IR and RF signals into portions. The Perdue patent transmits the complete IR signal during a time interval (referring to 70, Figure 4), then transmits the complete RF signal during the following time interval (referring to 72, Figure 4), and the Perdue patent continues to repeat the transmitting sequence alternating between transmitting the complete IR signal and the complete RF signal for as long as the input from the user continues to be the same, "... in this manner, the IR and RF signals are alternated and transmitted for as long as the user input is provided at the input device." Thus, the Perdue patent transmits the complete IR signal during time intervals 70, 74, 78, and so on (referring to Figure 4 and Figure 5) and the Perdue patent transmits the complete RF signal during the time intervals 72, 76, 80, and so on (referring to Figure 4 and Figure 5) until the input changes, wherein both IR and RF signals correspond to the same input signal. Therefore, the Perdue patent never discloses or even suggests transmitting only a portion of the data through the radio signal sending circuit (referring to element 17, Figure 1) and the IR sending circuit (referring to element 16, Figure 1). In contrast, the present invention claims, in Claims 1 and 18, "a controller configured to ... allocate portions of the data to be transmitted through the laser portion and the radio frequency portion," not sending the same complete signal in IR form and RF form by

alternating time intervals between the transmission of the complete signal in IR form and the transmission of the complete signal in RF form, as is taught by the Perdue patent.

The Examiner argued that “transmitting only a portion of data through the radio signal sending circuit or the IR sending circuit” is not recited in the rejected claims, and that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In response to the Examiner’s statement above, the Applicants believe that in light of the new response this is no longer an issue.

As previously stated and repeated here for clarity, the Applicants submit that Figure 4 in the Perdue patent illustrates different time intervals, and that Figure 4 does not illustrate different portions of a data signal. If the Examiner continues to maintain his objection, the Applicants respectfully request that the Examiner further clarify exactly where in the Perdue or Taglione or Nakamura patents the Examiner finds that the limitation of “allocate portions of the data to be transmitted” is taught, disclosed, or suggested.

For the foregoing reasons, the Applicants respectfully believe that Claims 1 and 18, as written, are patentable over the combination of prior art references and respectfully requests that these rejections of Claims 1 and 18 under 35 USC §103(a) be withdrawn.

The Examiner’s rejections of Claims 5, 6, 15, 16 and 23-24 over the Perdue patent in view of the Taglione patent or the Nakamura patent

Referring to Claim 5, the Examiner stated that the Perdue patent teaches that the IR portion is configured to both transmit and receive and that the RF portion is configured to both transmit and receive (referring to column 2, lines 51-55, column 9, lines 8-24, and column 10, lines 13-34).

Referring to Claims 6 and 23, the Examiner stated that the Perdue patent teaches that the IR portion and the RF portion are configured to transmit and receive in multiple channels (referring to column. 6, lines 23-34 and 76, 78 and 80, 82, in Figure 5).

Referring to Claims 15 and 24, the Examiner stated that the Perdue patent teaches that the IR portion and the RF portion are configured to transmit and receive in tandem (referring to column 2, lines 15-19).

5

Referring to Claim 16, the Examiner stated that the Perdue patent teaches that the IR portion and the RF portion are configured to transmit and receive in multiple channels (referring to column 6, lines 23-34 and 76, 78 and 80, 82, in Figure 5).

10 **Regarding the rejections of Claims 5, 6, 15, 16 and 23-24 over the Perdue patent in view of the Taglione patent or the Nakamura patent**

Claims 5, 6, 15, and 16 are dependent upon Claim 1, and Claims 23-24 are dependent upon Claim 18. For the reasons given above, the Applicants submit that Claims 1 and 18 are patentable over the cited prior art. Therefore, the Applicants submit that Claims 5, 6,
15 15, 16, 23, and 24 are also patentable over the cited prior art at least based on their dependence upon an allowable base claim.

The Examiner's rejections of Claims 10, 12, 14, and 22 over the Perdue patent in view of the Taglione patent or the Nakamura patent and in further view of the

20 **Vollert patent**

In section 6 of the current office action, the Examiner rejected Claims 10, 12, 14, and 22 under 35 U.S.C. § 103(a) as being unpatentable over the Perdue patent in view of the Taglione patent, or the Nakamura patent, and in further view of Vollert (German Patent No: DE 44 33 896 CI), hereinafter referred to as the "Vollert patent."

25

In particular the Examiner stated that, regarding Claims 10, 12, 14, and 22, the modified data transmission system of the Perdue and Taglione or Nakamura patents differ from the claimed invention in that the Perdue and the Taglione or Nakamura patents do not disclose the controller is configured to monitor the transmit and receive strengths. The
30 Examiner further stated that the Vollert patent teaches bi-directional transmission and reception of information over radio link (referring to FUS in Figure 1) or optical link

(referring to IUS in Figure 1) based on verification of the transmission quality of different paths (referring to translation page 5, last paragraph and page 6, first paragraph) by a controller (referring to PST in Figure 1) and switching (referring to translation page 6, lines 10-12) from one link to the other based on the evaluation and measurement results (referring to translation page 6, lines 3-18). The Examiner then concluded that it would have been obvious to a person of ordinary skill in the art to incorporate a controller such as the one of the Vollert patent for the controller in the modified data transmission system of the Perdue and the Taglione patents to verify the transmission quality of the transmission paths.

Regarding the rejections of Claims 10, 12, 14, and 22 over the Perdue patent in view of the Taglione patent or the Nakamura patent in further view of the Vollert patent.

Claims 10, 12, and 14 are dependent upon Claim 1 and Claim 22 is dependent upon Claim 18. Therefore, the Applicants respectfully refer the Examiner to the comments above regarding Claims 1 and 18. As stated before and repeated here for clarity, the Perdue and Taglione patents never disclose or even suggest transmitting only a portion of the data through the radio signal sending circuit and the IR sending circuit. Therefore, the Applicants submit that these Claims 10, 12, 14, and 22 are patentable over the cited prior art at least through their dependence upon an allowable base claim.

Furthermore, as noted by MPEP 2143.03, to establish a *prima facie* case of obviousness, all the claim limitations must be taught or suggested by the prior art. The Applicants respectfully submit that the combination of the Vollert patent with either the Perdue or Taglione patent does not teach all of the claim limitations of Claims 1 and 18. Specifically, the Applicants assert that the combination does not teach, disclose, or suggest “a controller configured to received data from a data source and connected with the laser portion and the radio frequency portion to allocate portions of the data to be transmitted through the laser portion and the radio frequency portion,” as is claimed in Claims 1 and 18.

The Applicants respectfully note that the Vollert patent never discloses or even suggests transmitting only “a portion” of the data through the IR portion for transmitting data and through the RF portion for transmitting data. In contrast with the present invention, the Vollert patent clearly transmits data to only either the radio transmission path or the
5 infrared transmission path, as claimed in Claim 1 of the Vollert patent (referring page 6, Claim 1, and page 1, lines 28-32) “... depending on the result of the verification, the exchange of information is directed over the bidirectional infrared transmission path (IUS) or the bidirectional radio transmission path (FUS) ...” Therefore, the Vollert patent never teaches, discloses or suggests to “allocate portions of the data to be
10 transmitted through the laser portion and the radio frequency portion,” as is claimed in Claims 1 and 18, since the Vollert patent disables one transmission path while enabling the other transmission path.

Further, “[i]f the proposed modification would render the prior art invention being
15 modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.” *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Also, “[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie*
20 obvious.” *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

With regard to incorporating a laser transmitter, as it is taught by the Taglione patent, for the IR transmission portion in the transmission system of the Vollert patent, the Applicants respectfully refer the Examiner to the Taglione patent (referring to col. 3,
25 lines 52-57), where it is clearly stated that “a medium band IR emitter is based upon InGaAsP LED or a laser diode, which has a nominal spectral response and generally will be arranged to provide a diffuse, relatively high power (about 500 mW) transmission.” Therefore, the Taglione patent diffuses relatively high power during a transmission. The Applicants further refer the Examiner to the Vollert patent (referring to page 3, lines 14-
30 19), where it states “[a] further advantage of the method according to the invention ... the average power consumption in the communication terminals is lower because of the

lower transmitting power of the infrared transmission path" Thus, one of the main advantages claimed in the Vollert patent (page 1, Figure 1 description) is that in order to save consumption of power, the Vollert patent allows for the transmission of signals using only the bidirectional infrared transmission path whenever possible, which has
5 lower power consumption than the radio transmission path, thus limiting the radio transmissions substantially and reducing the average power consumption.

Furthermore, the Applicants submit that it is common knowledge to someone of ordinary skill in the art of electronic design that a design requiring high power or high energy
10 outputs can not be combined with a design requiring low power or low energy outputs without damaging the low power design. At the very least, the low power design will stop to function once it is combined with the high power design components, and the low power (energy) design will change its principle of operation rendering it unsatisfactory for its intended purpose. On a worst case scenario, the low power design components
15 will short circuit and burn under the power demands of the high power (energy) design.

Therefore, the Applicants respectfully conclude that the proposed modification of combining the prior art from the Vollert patent, which claims low power consumption during the infrared transmission, with the prior art taught by the Taglione patent, which
20 have relatively high power (about 500 mW) transmission, would change the principle of operation of the Vollert patent. Thus, it would not have been apparent to any one skilled in the art to use the prior arts in this manner, since the combination of the prior art references would render the Vollert patent unsatisfactory for its intended purpose.

25 For the foregoing reasons the Applicants respectfully believe that Claims 10, 12, 14, and 22, as written, are patentable over the combination of prior art references and respectfully requests that this rejections of Claims 10, 12, 14, and 22 under 35 USC §103(a) be withdrawn.

The Examiner's rejections of Claims 11 and 13 over the Perdue patent in view of the Taglione patent or the Nakamura patent and in further view of the Vowell patent or the Shibuya patent

In section 7 of the current office action, the Examiner rejected Claims 11 and 13 under
5 35 U.S.C. § 103(a) as being unpatentable over the Perdue patent, in view of the
Taglione patent, or the Nakamura patent, and in further view of the Vowell patent or
Shibuya (US Pat. No. 6,509,991), hereinafter referred to as the "Shibuya patent."

In particular the Examiner stated that, regarding Claim 11, the modified optical
10 transmission system of the Perdue and Taglione, or Nakamura patents differ from the
claimed invention in that the Perdue and Taglione, or Nakamura patents do not disclose
that the controller includes a plurality of latches and a logic device to further provide
adjustments levels for the portions of data to be transmitted. The Examiner further
stated that the Vowell patent teaches an IR transceiver module that includes an IR
15 transmitter and receiver and a communication logic that is coupled to the transceiver to
control communication (referring to column 3, lines 5-8), wherein the communication
logic includes state machines, buffers, latches, registers, memories, etc (referring to
column 3, lines 8-10). Likewise, the Examiner stated that the Shibuya patent teaches a
transmit and receive control unit (referring to element 10 in Figure 6) that is comprised
20 of latches (referring to elements 59, 60, 61 in Figure 6) and logic devices (referring to
elements 62, 63 in Figure 6). Therefore, the Examiner concluded that it would have
been obvious to a person of ordinary skill in the art at time of invention that a controller
such as the one of the Perdue patent can include latches and logic devices, as it is taught
by the Vowell or Shibuya patents, to provide monitoring and control functions.
25 Regarding Claim 13, the Examiner stated that the Perdue patent teaches that the IR
portion and the RF portion are configured to transmit in multiple channels (referring to
column 6 lines 23-34 and 76, 78, 80, and 82 in Figure 5).

Regarding the rejection of Claims 11 and 13 over the Perdue patent in view of the Taglione patent or the Nakamura patent and in further view of the Vowell patent or the Shibuya patent

The Applicants respectfully note that trying to combine the prior art of the Perdue patent with three or more prior art references in order to reject Claims 11 and 13 is clear evidence of the unobviousness of Claims 11 and 13. Therefore, a clear evidence of the unobviousness of an invention is shown when a multiplicity of references, usually over
5 three references, must be combined in order to meet the claimed invention. For the foregoing reasons, the Applicants respectfully believe that Claims 11 and 13, as written, are patentable over the combination of prior art references and respectfully request that this rejection of Claims 11 and 13 under 35 USC §103(a) be withdrawn. Additionally, Claims 11 and 13 are dependent upon Claim 1. Thus, the Applicants believe that Claims
10 11 and 13 are allowable, at least based on their dependency upon an allowable base claim.

The Examiner's rejections of Claim 17 over the Perdue patent in view of the Taglione patent or the Nakamura patent and in further view of the Driessen patent

15 In section 8 of the current office action, the Examiner rejected Claim 17 under 35 U.S.C. § 103(a) as being unpatentable over the Perdue patent, in view of the Taglione patent, or the Nakamura patent, and in further view of Driessen (US Pat. No. 5,936,578), hereinafter referred to as the "Driessen patent."

20 Regarding Claim 17, the Examiner stated that the modified optical transmission system of the Perdue and Taglione, or Nakamura patents differ from the claimed invention in that the Perdue and Taglione, or Nakamura patents do not disclose an optical reflector to deflect transmission from the IR portion to work around the fixed objects. The Examiner further stated that the Driessen patent teaches an optical transmission system
25 (referring to Figure 6), wherein an optical reflector is used to deflect transmission from a laser portion to work around fixed objects (referring to column 6, lines 1-7). Then, the Examiner stated that, as it is taught by the Driessen patent, it would have been obvious to an artisan at the time of invention to incorporate an optical reflector, when transmitting data signals over a free space as it is taught by the Perdue patent, to provide
30 a deflection for signal transmission around the fixed objects to further continue signal transmission without interruption.

Regarding the rejection of Claim 17 over the Perdue patent in view of the Taglione patent or the Nakamura patent and in further view of the Driessen

The Applicants respectfully note that trying to combine the prior art of the Perdue patent with three or more prior art references in order to reject Claim 17 is clear evidence of the unobviousness of Claim 17. Therefore, a clear evidence of the unobviousness of an invention is shown when a multiplicity of references, usually over three references, must be combined in order to meet the claimed invention. For the foregoing reasons, the Applicants respectfully believe that Claim 17, as written, is patentable over the combination of prior art references and respectfully request that this rejection of Claim 17 under 35 USC §103(a) be withdrawn. Additionally, Claim 17 is dependent upon Claim 1. Thus, the Applicants believe that Claim 17 is allowable, at least based on its dependency upon an allowable base claim.

The Examiner's rejections of Claims 25-28 over the Perdue patent in view of the Taglione patent or the Nakamura patent and in further view of the Medved patent or the Bloom patent

In section 9 of the current office action, the Examiner rejected Claims 25-28 under 35 U.S.C. § 103(a) as being unpatentable over the Perdue patent, in view of the Taglione patent, or the Nakamura patent, and in further view of Medved et al. (US Pat. No. 5,818,619), hereinafter referred to as the "Medved patent," or Bloom (US Pat. No. 6,323,980), hereinafter referred to as the "Bloom patent."

Regarding Claims 25-28, the Examiner stated that the modified data transmission system of the Perdue and Taglione, or Nakamura patents differ from the claimed invention in that the Perdue and Taglione, or Nakamura patents do not disclose a portion of the network is configured with a ring topology, or a SONET ring. The Examiner then concluded that it would have been obvious to a person of ordinary skill in the art that a wireless data transmission system such as the one of the Perdue patent can be incorporated to a ring network to provide and share the information in a network. Furthermore, the Examiner stated that the Medved patent teaches wireless

communication systems (referring to elements 80, 82, 84 in Figure 5) can be applicable to any type of network such as ring network (referring to column 1, lines 35-40). The Examiner further stated that the Bloom patent teaches that optical transceivers (referring to 10 in Figure 2) and RF transceiver (referring to element 13 in Figure 2) can be used in a network with a SONET format (referring to column 5, lines 30-45). The Examiner then concluded that it would have been obvious to an artisan at the time of invention to incorporate a wireless data transmission system, such as the one of the Perdue patent, in a ring network as it is taught by the Medved patent, or in a SONET ring as it is taught by the Bloom patent, in order to provide and share information between other wireless devices on a network.

Regarding the rejections of Claims 25-28 over the Perdue patent in view of the Taglione patent or the Nakamura patent and in further view of the Medved patent or the Bloom patent

The Applicants respectfully note that trying to combine the prior art of the Perdue patent with three or more prior art references in order to reject Claims 25-28 is clear evidence of the unobviousness of Claims 25-28. Therefore, a clear evidence of the unobviousness of an invention is shown when a multiplicity of references, usually over three references, must be combined in order to meet the claimed invention. For the foregoing reasons the Applicants respectfully believe that Claims 25-28, as written, are patentable over the combination of prior art references and respectfully request that this rejection of Claims 25-28 under 35 USC §103(a) be withdrawn. Additionally, Claims 25-28 are dependent upon Claim 18. Thus, the Applicants believe that Claims 25-28 are allowable, at least based on their dependency upon an allowable base claim.

Dependent Claims

Claims 2-17 are dependent upon Claim 1, Claims 19-28 are dependent upon Claim 18, Claims 30-41 are dependent upon Claim 29, and Claims 43-51 are dependent upon Claim 42. For the reasons given above, the Applicants submit that Claims 1, 18, 29, and 42 are patentable over the cited prior art. Therefore, in addition to the reasons set forth above, the Applicants submit that Claims 2-17, 19-28, Claims 30-41, and Claims 43-51 are also

patentable over the cited prior art at least based on their dependence upon an allowable base claim.

Closing Remarks:

In view of the foregoing, it is respectfully submitted that all pending claims, Claims 1-51, are in allowable condition. Reconsideration is respectfully requested. Accordingly, early allowance and issuance of this application is respectfully requested. Should the


5 Examiner have any questions regarding this response or need any additional information, please contact the undersigned at (310) 589-8158.

The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to deposit account no. 50-2691. In particular, if this response is not
10 timely filed, the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136(a), requesting an extension of time of the number of months necessary to make this response timely filed and the petition fee due in connection therewith may be charged to deposit account no. 50-2691.

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Respectfully submitted,

05/01/2006
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